Excerpts from "History of Sexually Transmitted Infections" by Michael Waugh. In *Sexually Transmitted Infections and Sexually Transmitted Diseases*, ed. Gerd Gross & Stephen K. Tring. Heidelberg Dordrecht London New York: Springer Science & Business Media, 2001, pages 3-11.

Note from BH: With the exception of material in brackets [ ], deleted material indicated by ellipses, and the modernized spellings of the words *gonorrhoea* and *spirochaetes*, I've transcried these selections are transcribed without intentional alteration from the original.

Core Messages [one of several in the original]:
STIs have been described since the beginning of recorded history in Europe and Asia, in handwritten manuscript until the invention of the printing press by Gutenberg in 1454. The history of STIs for the next 500 years followed the growth of medical and scientific discoveries and thus knowledge. STIs were affected by many human activities: travel, trade, war, colonial expansion, migration, industrialization, increasing public education, the emancipation of women, slaves, and men who have sex with men.

From sections 1.3 and 1.4: **Sexually Transmitted Infections in Ancient Times and The Development of the Concept of Venereal Diseases Prior to the Nineteenth Century**

There are records of STIs—most notably [genital] discharge that was probably [caused by] gonorrhea—from the earliest times. For example, STIs have been described in the Ebers papyrus [and] the Old Testament in Leviticus 15:2-33 . . . The Greek and Roman authorities described STIs, including Hippocrates, Celsus, Galen (who gave us the word *gonorrhea*, meaning a flow of semen), Arateus of Cappadocia (who distinguished vaginal gonorrhea from simple discharge), and Soranus (who described the condition). The Golden Age of Islam (900-1100 AD) is exemplified by Abu Ali al Hussein ibn Sina Avicenna (980-1037), who was less remarkable as a physician than as a philosopher and physicist. His gigantic *Canon of Medicine* (*al-Qānūn fī aṭ-Ṭibb)*, which dealt with the whole of systemic medicine, recommended irrigations for urethral discharge. Later, Maimonides of Cordoba (1135-1204), who spent most of his active life in Cairo, in "Aphorisms" described gonorrhea as [typified by] fluid escaping without erection or feeling of pleasure, doughy [but not painful swelling of the testicles], and the result of disease including amorousness and excesses.

During the Middle Ages in Europe, advances in the knowledge of gonorrhea were made. Roger of Salerno (1180) and William of Salicet (1210-77) wrote on the causality and natural history of gonorrhea; John of Gaddesden (1280-1361) recognized urethritis, epididymitis and vaginitis [as related symptoms]. The contagiousness of gonorrhea was generally recognized, as shown by rules for preventing infected prostitutes from plying their trade in Southwark, London in 1162, Avignon in 1347, and Hamburg, Strasbourg, Cologne and Ulm in the eleventh to fifteenth centuries.

Other STIs, including scabies and pediculosis pubis [crabs or public lice], have also been recognized since ancient times, although the concept of different causes for skin diseases has only developed in the last 300 years. Genital human papilloma virus infection (HPV; i.e., genital warts) has been recognized for 2000 years [though of course the cause of the symptoms wasn't identified until quite recently]. Anal warts resulting from anal intercourse were exemplified by Juvenal [Roman writer, circa 50-127 CE] in his satires. Much later, they were described by the English surgeon Richard Wiseman in 1676 and the French physician Jean Astruc in 1736.

From section 1.4: **The Development of the Concept of Venereal Diseases Prior to the Nineteenth Century**

The Renaissance showed that any change in medical knowledge is as much influenced by outside social, geopolitical and economic forces as it is from within medicine. So it was with venereal diseases (VD). Syphilis is among the most interesting of diseases from a historical standpoint, not only because of arguments about its origin [see article by Wilford on D2L] but because of its influence on morality and measures towards public health.

There is a great amount of literature not only on syphilis's effect in Italy, but also on its progress, discoveries and consequences throughout Europe after 1494. By the end of the fifteenth century, most of its immediate consequences, including congenital syphilis, had been described.

However, some controversies surrounded syphilis for many years. The Diet of Worms ([proceedings of an official assembly ("diet") of the same name held in the German city of Worms] 7th August 1495) was the first printed document to mention this new severe disease: "There have been severe diseases and plagues of the people, to wit 'bösen Blattern' which have never occurred before nor been heard of within the memory of man." In the [official] Latin translation [of the German draft], this new type of disease, "bösen Blattern," is called Malum Francicum [the evil/curse from France]. . . . By some, syphilis was considered to be a pox due to the wrath of God and a punishment for immorality. Even astrological explanations were given for it [see Dürer illustration in my edited document "History of Syphilis to mid-20th Century" on D2L].

However, the venereal origins of syphilis were quickly realized and bluntly stated by Andrew Boord in 1547: "It may come when one pocky person doth synne in lechery the one with another. All the kyndes of the pockes be infectiouse." The term venereal disease (Latin: lues venera) was used by Jacque de Bethencourt of Rouen in 1527. In 1530, Girolamo Fracastoro of Verona wrote [a poem titled] "Syphilus sive morbus gallicus" [in which a swineherd named Syphilus] was thought smitten with the disease when he refused to make sacrifices to Apollo. [Fracastoro recommended] Guaiacum, a wood recently imported from South America . . . as a treatment because [it encouraged sweating and was thus thought to purge illness]. Mercury in [in the form of] ointment, pill and fumigation [was] also used.

. . . Daniel Turner (1717) advocated the use of the "condum" (from Latin "condere; to protect") to prevent [infection].

From section 1.5.1: **Epidemiology**

The concept of the nation-state and the regulation by the state of various aspects of a citizen's life meant that the relationship of VD took on a new importance in this era. Parent-Duchatelet (1790-1836) was a pioneer in epidemiology. [In a posthumous 1837 publication], he tabulated where prostitutes lived in Paris, where they came from, and their former trades. He also noted that syphilis, gonorrhea, scabies and uterine cancers were more frequent in them than in other women. This was the start of many epidemiological and sociological studies on the relationships of society, women, prostitutes, and VD throughout the nineteenth centuries and to present times. Such studies were highlighted by Flexner (1914) and the British Royal Commission on Venereal Diseases (1916). Colonial policies on sex and its influence on STDs and society thus needed to be formulated.

Neurosyphilis. Fournier (1875) proposed that syphilis was the cause of general paralysis (GPI), tabes dorsalis, tabo-paresis, and primary optic atrophy [no need to worry about what exactly these medical diagnostic terms mean]. But it was not until 1913 that Hideyo Hoguchi (1876-1928) and Moore, who were working at the Rockefeller Institute in New York, were able to demonstrate spirochetes in the brains of a series of paretics [people who were paralyzed due to syphilitic infection]. [Spirochetes are spiral-shaped bacteria, including the syphilis bacterium.]

See Hutchison, "A Brief History of Syphilis" for more information, including early 20th century treatment and US Public Health response.

Gonorrhea. Microbiology made amazing progress in the latter part of the nineteenth century, led by Louis Pasteur (1833-1895) and Robert Koch (1843-1910). Using Koch's techniques, Albert Neisser (1855-1916), at the age of 23 in 1879 with a Zeiss Microscope and an Abbe condenser, was able to demonstrate the micrococci of gonorrhea from cases of purulent urethritis and ophthalmia neonatorum . . . In 1882, he stated: "Gonococci [a species of the double ovoid, "coffee bean-shaped" diplocci bacteria] are absolutely constant in every case of gonorrhea . . . and they are not found in any other disease . . . furthermore, gonococci are the only organisms found in gonorrheal pus." [In 1883, a 2% solution of silver nitrate was found to prevent neonatal eye infections caused by passage through the birth canal of a woman with gonorrhea.]

Section 1.5.2 Syphilis: Causation, Serology and the Magic Bullet is sufficiently covered in Hutchison "Brief History: noted above.

1.5.3 **Chlamydial Trachomatis Oculogenital Infection**

With the advent of penicillin, it was noticed that some men with urethral discharge did not respond to penicillin. This resulted in the 1950 work of Arthur Herbert Harkness (1889-1970), who recognized nongonococcal urethritis [inflammation of the urethra *not* caused by gonorrheal infection] as a separate entitiy. From 1959, when it was first isolated from genital material, . . . the [Chlamydia] organism has been increasingly recognized and is the most frequent bacterial STD in industrialised countries.

1.5.4 **Impact on Society Before . . . the Discovery of AIDS** (post-HIV/AIDS info from this source may be included in the second pack of readings)

Few diseases have had such an impact on society as STIs. After all, these infections have an enourmous mpact on those who contract them—both physically and psychologically. If not treated, STIs may cause serious ill health and even death—especially viral STIs, which can develop from HIV to AIDS, from human genital papilloma virus to anogenital cancers, from herpes genitalis to morbidity and recurrences, and from hepatitis B or C to mobidity and morality through long-term disease of the liver. It has been a short time in human history from the advent ot antibiotics, which to the general public seemingly allowed for instant cure of bacterial STDs, to the discovery of HIV—not withstanding infertility caused by pelvic inflammatory disease or epidiymorchitis as a result of gonococcal or chlamysial infections. . . .

However, if a study is made of great literature in the last 400 years, the arguent for chastity for the individual does not seem to make any impact for very long: from Voltaire in *Dictionnaire Philosophique* (1764), “Veneral diseases are like the fine arts—it is pointless to ask who invented them, to Alexander Pope in *Satires of Dr. Donne* (1745), “Time that at last matures a clap to pox / Whose gentle progress makes a calf an ox,” and to Henrik Ibsen in *Ghosts* (1881), . . . [the character Oswald Alving, born with congenital syphilis due to his late father’s many sexual affairs, confronts his mother] “I never asked you for life. And what sort of life have you given me?” Rather the reaction is usually more like James Boswell in the *London Journal* [written 1762-63, first published in 1950], “When I got home, though, there came Sorrow. Too plain was Signor Gonorrhoea.”

The financial strain put on a nation may be more impactful, considering the cost of sTI morbidity to a large section of its young workforce. The final report of the British Royal Commission on Venereal Disease in 1916 demonstrated the high mortality from syphilis, with mortality statistics showing 10% of London working-class males infected; 25% of infantile blindness was found to be due to opthalmia neonatorum.

1.5.5 **Scientific Achievements since the Advent of Chemotherapy**

Ehrlich had been a pioneer in treating infections diseases with synthetic compounds. However, with the exception of treponemata, it was thought that bacteria were not susceptible to chemotherapy. Research on penicillin and [sulpha drugs] was to change this. In 1935, Gerhard Domagk . . . reported that [a sulpha-based compound] was curative against haemolytic streptococcal infections in animals. . . . In 1937, studies on the use of [the drug] in gonorrhea appeared . . . By the start of World War II, it was the main treatment of gonorrhea in all opposing military forces. However, by 1944 resistant strains of *N. gonorrhoea* had occurred in up to 75% of cases. . . .

The story of the discovery and development of penicillin is one of the great romances of medicine, with the 1945 Novel Prize [in medicine] awarded to [Fleming, Florey and Chain]. The use of penicillin in the treatment of syphilis was first reported . . . in 1943. . . . Penicilllin was also found to be effective in [treating] gonorrhoea, although by 1958 it was evident that resistance was developing. In the following years, this became a major problem.

The course of untreated syphilis had been studied in detail in Oslo, Norway . . . and reported in 1955. In all, 30% of patients developed complications of one sort or another.